APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/846,823	04/30/2001	Ted E. Dunning	085804-014501	5884

32361 7590 11/20/2007	EXAMINER
GREENBERG TRAURIG, LLP MET LIFE BUILDING 200 PARK AVENUE NEW YORK, NY 10166	RETTA, YEHDEGA

ART UNIT	PAPER NUMBER
3622	

NOTIFICATION DATE	DELIVERY MODE
11/20/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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	Application No.	Applicant(s)
Office Action Summary	09/846,823	DUNNING ET AL.
	Examiner	Art Unit	
	Yehdega Retta	3622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _01 November 2007_.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-97_ is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1-97_ is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _11/1/07_.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

This office action is in response to after final argument filed November 1, 2007. Claims

1-97 are still pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

Claims 1, 4-14, 17-27, 32, 33, 39, 42-45, 48-59, 62-72, 75-85, 91 and 92 are rejected

under 35 U.S.C. 103(a) as being unpatentable over Hosken U.S Patent No. 6,438,579.

Regarding claim 1, Hosken teaches accepting, in a computer, item selections detected

from a plurality of users; generating, in the computer, a log for each user, each log containing

identifiers corresponding to detected user item selections **(see '579' col. 3 lines 15-33) and (see**

'377' page 6 par. 1-5)). Hosken provisional '377' teaches the user profile table (user profile,

user profile rating) contains identifying information about music items linked to a user, the

information in this table can be provided using explicit rating information provided by the

user or through implicit observation by the system based on user's actions (see also fig. 1);

accepting, in the computer, a query including at least one query item identifier; scoring, in the

computer, each of the user logs, the scoring for each user log being responsive to a degree of

occurrence of the at least one query item identifier in the user log, so as to generate user log

score for each user log based exclusively on detected user item selections and the at least one

query item (see '579' col. 12 line 35 to col. 13 line 6). **Hosken '377 also teaches accepting item**

selection (user choosing an item); generating user log (profile based on implicit and explicit

rating data for music provided by users) containing identifiers (vectors) corresponding to

detected user item (see pp 5 lines 6-20); accepting a query (selection) and scoring

(correlating similarity between the user ratings and other users' rating and determining

weigh for each item to give rating weight (see pp 11 line 4 to pp. 12 line 6); determining, in

the computer at least one result item, responsive to a degree of occurrence in at least a subset of

the scored user logs, so as to discover at least one relationship based exclusively on detected user

item selections and the at least one query item (see '579' col. 15 line 10 to col. 16 line 21, col. 16

lines 24-55). **Hosken '377' also teaches being responsive to a degree of occurrence of the**

item identifier in the user logs (weight for each item determined by multiplying the

correlation with the rating to give the correlated rating weight (pp 8 lines 14-25);

determining at least one result item (recommendation) (see pp 10-13 and abstract and fig.

2b to fig. 5).

Hosken also teaches that the explicit information provided by users provides high-

confidence information that can be incorporated into the group and individualized collaborative

data. Hosken teaches that implicit and explicit profiling data is used to provide recommendation

(see col. 4 lines 44-67). Hosken discloses that the user may explicitly enter music items and

ratings or the system may derive implicit ratings of music items based on system-based

observations (detected) of user actions and the system making recommendation based on the

input (see col. 14 lines 13-20). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement selected features of Hosken. Omitting Hosken's collection of explicit user profile, by interviewing or surveying users, would cost less to operate the system. Also it would have been obvious to one of ordinary skill in the art to provide recommendation from implicit user profile only to those who are not willing to participate in the interview or survey of Hosken. It is also well settled that the elimination of an element or its functions is an obvious expedient if the remaining elements perform the same functions as before - *In re Karlson*, 136 USPQ 184, 186; 311 F2d 581 (CCPA 1963).

Regarding claims 4-11, Hosken teaches video track or music track, generating track list containing an identifier for each determined result. Hosken teaches recommending music and video and other media content items based on similarity in profile between the user and other users (see '579' col. 12 line 38 to col. 13 line 30, **see '377' page 6 , 12).**

Regarding claims 12 and 13, Hosken teaches accepting selection; input specifying an item purchase by user, provided via web page (see '579' col. 4 lines 11-55, col. 5 lines 20-62, **see '377' page 7 and fig. 3**).

Regarding claim 14, Hosken teaches defining a subset of the scored user logs (see '579' col. 15 line 10 to col. 16 line 21, **see '377' page 10 &11**).

Regarding claim 17, Hosken teaches wherein accepting item selections comprises receiving input provided by a user via an application for playing tracks (see '579' col. 4 lines 11-15, col. 5 lines 20-62, **see '377' page 7, 12 and fig. 3**).

Regarding claims 18-21, 48-53 and 75-79, Hosken teaches wherein accepting a query comprises receiving a user log containing identifiers for a user's item selections; wherein

accepting a query comprises receiving a first search term, generating, in the computer, a second

search term containing an identifier for each determined result item; providing, in the computer,

the second search term as input for a search engine; and adding, in the computer, the second

search term to a searchable portion of a document associated with the first search term;

periodically uploading the generated log (see '579' col. 8 lines 38-65, **see '377' page 8 &9**).

Regarding claims 22-27, 54-58 and 80-85 Hosken teaches outputting advertisement

related to the determined result (see '579' col. 8 lines 38-53, col. 16 lines 24-53, **see '377' page

7 & 12**).

Regarding claims 32 and 33, Hosken teaches deleting item selected by user from the

determining at least one result, ranking the result responsive to the degree of significance (see

col. 16 lines 24-53, **see '377' page 12**).

Claims 39 and 59 are rejected as stated above in claim 1.

Claims 42-45 and 62-69 are rejected as stated above in claims 4-11.

Claims 70 and 71 are rejected as stated above in claims 12 and 13.

Claim 72 is rejected as stated above in claim 14.

Claims 91 and 92 are rejected as stated above in claims 32 and 33.

Claims 2, 3, 28-31, 34-38, 40, 41, 60, 61, 86-90, 93-97 are rejected under 35

U.S.C. 103(a) as being unpatentable over Hosken U.S. Patent No. 6,438,579 further in view of

Lazarus U.S. Patent No. 6,430,539.

Regarding claims 2, 3, 40, 41, 60, 61 and 86 Hosken does not explicitly teach

significance of occurrence being determined by a log of likelihood ratio analysis or a substantial

equivalent of a log of likelihood ratio analysis, it is taught by Lazarus (see col. 22 line 19 to col. 25 line 53). Lazarus teaches use of a log of likelihood ratio or an equivalent analysis to determine significance of occurrence (see abstract, col. 4 lines 24-67 and col. 39 lines 13-53). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to use Lazarus's predictive model in Hosken's recommendation system since a log of likelihood ratio or equivalent ratio analysis overcomes the problem of small count situations and have much better small count behavior while at the same time retaining the same behavior in the non-small count regions as taught by Lazarus (see col. 24 line 44 to col. 25 line 38).

Regarding claims 28-31, 34-38, 87-90, 93-97, Hosken teaches determining a total number of users, *each group containing information detected from implicit use behavior,* (see fig. 2 (70, 68, 64)); determining a subset of user, determining the items selected or not selected by the subsets and use of correlation algorithm to determine the correlation between the cluster and the user (see col. 15 line 10 to col. 16 line 21). However Hosken failed to explicitly teach the correlation algorithm as a log likelihood ratio, it is disclosed in Lazarus (see abstract, col. 4 lines 24-67 and col. 39 lines 13-53). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to use Lazarus's predictive model in Hosken's recommendation system since a log of likelihood ratio or equivalent ratio analysis overcomes the problem of small count situations and have much better small count behavior while at the same time retaining the same behavior in the non-small count regions as taught by Lazarus (see col. 24 line 44 to col. 25 line 38). Hosken discloses that the user may explicitly enter music items and ratings or the system may derive implicit ratings of music items based on system-based observations of user actions and the system making recommendation based on the input (see col. 14 lines 13-20). It

would have been obvious to one of ordinary skill in the art at the time of the invention to

implement selected features of Hosken. Omitting Hosken's collection of explicit user profile, by

interviewing or surveying users, would cost less to operate the system. Also it would have been

obvious to one of ordinary skill in the art to provide recommendation from implicit user profile

only to those who are not willing to participate in the interview or survey of Hosken.

Claims 15, 16, 46, 47, 73 and 74 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Hosken U.S. Patent No. 6,438,579 further in view of Ward U.S. Patent No.

6,526,411.

Regarding claims 15, 16, 46, 47, 73 and 74, Hosken '377' failed to explicitly teach

monitoring user behavior by detecting user input ... Ward teaches selecting tracks based on users

profiles including the user dislikes for a particular item either by skipping or through rating (see

col. 8 lines 20-40). It would have been obvious to one of ordinary skill in the art at the time of

applicant's invention was made to modify Hosken's recommendation system by making the

selection of tracks based on how often the track was played or based on when the last time the

track was played, as in Ward's, in order to improve the recommendation system by refining user

preference.

Response to Arguments

Applicant's arguments filed August 31, 2007 have been fully considered but they are not

persuasive.

Applicant argues that the '377 Hosken provisional identifies a user profile as consisting of

information identifying a music item and rating information. While the '377 Hosken provisional

indicates that this information can be provided <u>using explicit rating information provided by the</u>

user or through implicit observation of the system based on users' actions, the '377 Hosken

provisional lacks any disclosure, enabling or otherwise, as to how user profile information or

user profile rating information, is derived from implicit observation of users' action. Applicant

further argues that the '377 provisional fails to provide any disclosure that would enable one of

ordinary skill to use observed behavior, or ratings information derived from observed behavior,

to make a recommendation. Examiner respectively disagrees. Hosken '377 provides ample

disclosure and enablement on how the user implicit observation is used to provide

recommendation (see fig. 1-5, page 5, 8, 9-12).

Applicant also asserts that nothing in the examples provided in the '377 Hosken

provisional and in Hosken '579 can be said to correspond to scoring each user log, the scoring for

each user log being responsive to a degree of occurrence of at least one query item, the user log

score that is generated being based exclusively on detected user item selections and the at least

one query item. Applicant argues "(a)gain, the example fails to provide any enabling disclosure

as to how the correlation is performed. If the calculated correlation between the user and the

cluster user meets a threshold, the two users' profiles are compared to identify any items

contained in the cluster user's profile that are not contained in the user's profile. At page 11, line 4

to page 12, line 6 of the '377 Hosken provisional, a weight is determined for an item that is found

in the cluster user's profile but not found in the user's profile. The weight is determined to be the

calculated correlation between the user's profile and the cluster user's profile multiplied by the

rating of the item not found in the user's profile. Even assuming *arguendo* that the assumption

apparently made by the examiner that a user profile corresponds to a user log (a point that is in

no way conceded, and in fact the two are different as apparent from a reading of the cited versus

instant application), a calculated rating weight for an item in a user profile, as is described in the

"Collaborative Recommendation" example, *rates an item in the user profile, not the user*

profile. A rating weight calculated for one item contained in the cluster user's profile, as in

Hosken '377, cannot be said to correspond to the claimed score for a user log, as the two items

result from different processes and are not used in the same manner".

According to applicant's disclosure:

> Play log 114 is a database that monitors and stores information describing user behavior. Specifically, the user's interaction with jukebox 103, including track selection, repeats, aborts and skips, and the like, are recorded and stored in play log 114. Log analysis module 113 *analyzes play log 114 in order to generate a profile of the user,* which is stored in profile database 112. Profile database 112 contains user-level profiles that encode personal listening behavior of particular users. Log analysis module 113 periodically updates profile database 112 as new information becomes available, so as to refine the user profile over time.

> Based on the supplied query, a list of relevant users 1403 is obtained. In general, this list includes users that have played the specified tracks, or who have played music by the specified artist, and the list is ordered by the relative prominence of the track or artist in the user's play log. In one embodiment, step 1403 is performed by weighting the tracks in the query using one of several weighting strategies. A list of users having play logs that include one or more of the query tracks is obtained using an inverted index in play log database 114. *The matching tracks from each play log are weighted according to the selected play log weighting scheme.* If a query track is absent in the play log, its weight is zero. *The score of the user with respect to the query is the sum across all query tracks of the query weight multiplied by the user's play log weight for each track.*

A score can be generated for each listener's play logs relative to a query, and the highest-scoring listeners can be added to the listener list. A score for a listener with respect to a query is determined by taking the dot product of the query vector and the vector for a listener's play logs. In one embodiment of the present invention, the above-described weighting factors are applied to the vector terms in order to improve the results of the scoring process.

Once play logs have been scored for retrieval using weighting factors, play logs are retrieved, based on the relationships to the query. These play logs contain artists, albums, and/or tracks. Over-represented artists, albums, and/or tracks are extracted based on measured significance using the log likelihood ratio. These over-represented items are output as recommendations.

Applicant's disclosure also discloses scoring the item in the profile, play log, which is part

of the profile.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Yehdega Retta whose telephone number is (571) 272-6723. The

examiner can normally be reached on 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Eric Stamber can be reached on (571) 272-6724. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Yehdega Retta
Primary Examiner
Art Unit 3622

YR